



SDMS Document ID



2163012

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ECEJ-TEP

February 17, 2005

Sent via U.S. Mail

Eric Johnson  
U.S. Environmental Protection Agency  
Region 8, 8ENF-T  
999 18<sup>th</sup> Street, Suite 300  
Denver, Colorado 80202-2466

RE: Progress report for January 2005 activities - Hecla Mining Company Apex Site (EPA ID No. UT982589848, Docket No. RCRA-8-99-06)

Dear Mr. Johnson:

Per paragraph 64 of the Order, enclosed is a copy of the January 2005 progress report for your records.

If you have any questions please do not hesitate to call me at (208) 769-4135 or e-mail at [cgypton@hecla-mining.com](mailto:cgypton@hecla-mining.com).

Sincerely,

Chris Gypton  
Project Manager

End

Cc: John Galbavy, Esq. (HMC) (w/o attachments)  
John Jacus, Esq. (DG&S)



COPY

U5900007  
03-28

February 17, 2005

**Sent via U.S. Mail**

Glenn Rogers, Chairman.  
Shivwits Band of Paiute Indian Tribe  
P.O. Box 448  
Santa Clara, Utah 84765

John Krause  
Bureau of Indian Affairs Phoenix Area Office  
U.S. Department of Interior  
P.O. Box 10  
Phoenix, AZ 85001

Deborah Hamlin  
BIA Southern Paiute Field Station, Branch of Natural Resources  
P.O. Box 720  
St. George, UT 84771

RE: Progress report for January 2005 activities - Hecla Mining Company Apex Site (EPA ID No. UT982589848, Docket No. RCRA-8-99-06)

Dear Chairman Rogers, Mr. Krause and Ms. Hamlin:

Per paragraph 64 of the Order, enclosed is a copy of the January 2005 progress report for your records.

If you have any questions please do not hesitate to call me at (208) 769-4135 or e-mail at [cgypton@hecla-mining.com](mailto:cgypton@hecla-mining.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Gypton", written over a horizontal line.

Chris Gypton  
Project Manager

End

Cc: John Galbavy, Esq. (HMC) (w/o attachments)  
John Jacus, Esq. (DG&S) (w/o attachments)  
Eric Johnson (USEPA, Region VIII) (w/o attachments)

U89848  
03-28



February 17, 2005

**MEMORANDUM TO:** Paul Glader

**COPIES TO:** file, distribution

**FROM:** Chris Gypton

**SUBJECT:** Progress Report No. 9 for period ending January 31, 2005;  
Pond 2 Final Closure - Apex Site, Washington County, Utah

**Summary**

Abnormal precipitation (mostly rain) continued in the first half of January. Washington County experienced bridge washouts and widespread flooding. The main roads to the site were closed intermittently for several days, however we were able to maintain access via a little used dirt roads, often requiring four wheel drive due to the muddy conditions. By the end of the month the local road situation had improved. During the inclement weather the site was monitored continuously and containment seepage from the impoundment was maintained.

In addition to managing the seepage collection system, site activities continued focused on completing the upgrade of the drainage and evaporation systems. Evaporation basin 3 was lined and evaporation basin 2 was excavated and lined. Grading for evaporation basin 1 was started. Additional drainage piping and sumps were installed. Construction was started on a containment berm around the perimeter of the top of the impoundment.

The revised schedule assumes that management of the seepage collection system will be main activity through March 2005, however the dewatering sumps will be pumped out if it appears the conditions to evaporate this water are favorable. The winter wet season typically ends in late March to early April, so we plan to focus more on dewatering starting in April 2005. The water level in seepage collection ponds will be kept as low as possible in any case. Based on our observations of the evaporation rate in summer 2004, it is reasonable to set the target start of the final cover construction in late June 2005.

## **Major Issues**

1. Heavy precipitation continued to make access to , and work at, the site a challenge. The start of final cover installation must be deferred until May 2005, at the earliest.
2. The gas noted last month proved to be mostly carbon dioxide with trace amounts of hydrocarbons. The gas is most likely the result of low pH water contacting limestone in the tailings. Perforated pipe was installed under the evaporation basin liners to vent the gas and minimize the forming of "whalebacks". Venting of the gas from existing evaporation basin 4 was generally successful; the number and size of the whalebacks decreased by the end of the month. At this stage the gas is no longer considered an issue. Dewatering of the tailings should reduce the likelihood of similar volumes of gas forming in the future, however we will review the final cover design to ensure it can accommodate this possible event.

## **Work Planned for Next Period**

1. Continue management of the existing seepage collection system. Water collected in the system will be periodically pumped back to the impoundment and allowed to evaporate. The inventory of water in the seepage collection system will be kept to a practical minimum.
2. Dewatering of the tailings as weather conditions permit.
3. Complete the upgrade of the dewatering system piping, containment berm and lining of the last larger evaporation basin.

## **Work in Process**

### *Procure Outside Services*

1. A separate contract will be issued to Hughes for the periodic site maintenance in February. (Hughes is currently doing this work under the T&M earthwork contract issued in December 2004) This will consist of pumping out the seepage collection ponds as required. The contract will include provisions for a minimum payment to the contractor to ensure their personnel are "on call" in case heavy rain events require prompt pumping out of the ponds. Gila Management will also visit the site several times a month to review/document conditions.

### *Procure Materials*

1. Two submersible pumps, a portable generator and hoses were purchased for seepage collection management and tailings dewatering.

### *Contractor Submittals*

1. No activity

### *Seepage Collection System Maintenance*

1. Personnel were on site a total of twenty on days in the month for earthwork related activities. Seepage collection system was maintained concurrently.

2. Early in the month temporary arrangements were made with the OMG site caretaker to check on the collection ponds, and run the transfer pump as necessary, over the weekends.

#### *Miscellaneous Civil Work and Dewatering System Upgrades*

1. Evaporation basin 3 was lined and basin 2 was excavated and lined. Both basins were placed into service. Perforated piping was installed immediately below the liners to vent any carbon dioxide gas.
2. Drainage piping and deep sumps were installed under and adjacent to the footprint of evaporation basin 1. Grading for evaporation basin 1 was mostly complete by the end of the month.
3. Lining materials from the small evaporation basins constructed last summer were removed and buried in the impoundment.

#### *Phase II Drain/Evaporate Excess Water*

1. This activity was intermittent in January, most of the efforts were focused on managing the seepage collection system and civil works improvements. Gila Management is developing a site maintenance log to track dewatering progress.

#### **Sampling and Analysis in Period**

##### *Material Characterization*

1. JBR Environmental Consultants sampled the gas from the "whalebacks" in evaporation basin 4 on January 7<sup>th</sup>. All analytical results were received and verbally communicated to Hecla by January 17<sup>th</sup>. The gas is mostly carbon dioxide with trace amounts of hydrocarbons.

##### *Field Tests, Inspections & QA/QC*

1. No activity

## **Cost and Schedule**

Committed costs in January 2005 were approximately \$82,000. The majority of the expenditures were associated with management of the seepage collection system and replacement of the evaporation cells with larger ones. Total project to date committed is approximately \$409,000. Forecast cost at completion is now expected to be \$1,051,000.

The cost report for January is attached. Current status of the deliverables listed in the RCRA 7003 order is as follows:

<b>Deliverable</b>	<b>Reference Paragraph</b>	<b>Due</b>	<b>Remarks</b>
Post warning signage around perimeter of site	57	<b>15 days after effective date of order</b>	Work completed on March 9, 2004
Begin implementation of closure plan	63	<b>45 days after receipt of filing of order</b>	Work started on February 23, 2004
Monthly progress reports	64	<b>28<sup>th</sup> day after close of month</b>	Requirement in effect after order is filed.
Completion report	65	<b>30 days after completion of all closure plan tasks</b>	To be submitted within 30 days after work has been physically completed and all contracts closed out.

The update of the schedule milestones is on the following table:

<b>Milestone</b>	<b>Target</b>	<b>Actual</b>	<b>Remarks</b>
Issue bid package – Phase I (Sump Drains)	6/14/04	<b>6/15/04</b>	Portion of RFP materials issued at pre-bid on 6/14/04; remainder sent via courier
Issue RFP package – Phase III	6/24/04	<b>6/24/04</b>	
Award contract for Phase I	6/24/04	<b>6/29/04</b>	Date contract was shipped to Hughes
Pre-bid meeting – Phase III	7/19/04	<b>7/19/04</b>	
Start Phase I (Sump Drains) construction	7/12/04	<b>7/19/04</b>	
Start Phase II (Evaporation)	7/19/04	<b>7/29/04</b>	
Receive bids for Phase III	8/2/04	<b>8/2/04</b>	
Re-bid Phase III contract package	April 2005		
Start Phase III construction	June 2005		Revised target based on dewatering progress
Complete Phase III construction	August 2005		Revised target based on late PH III start

## **Supplemental Attachments**

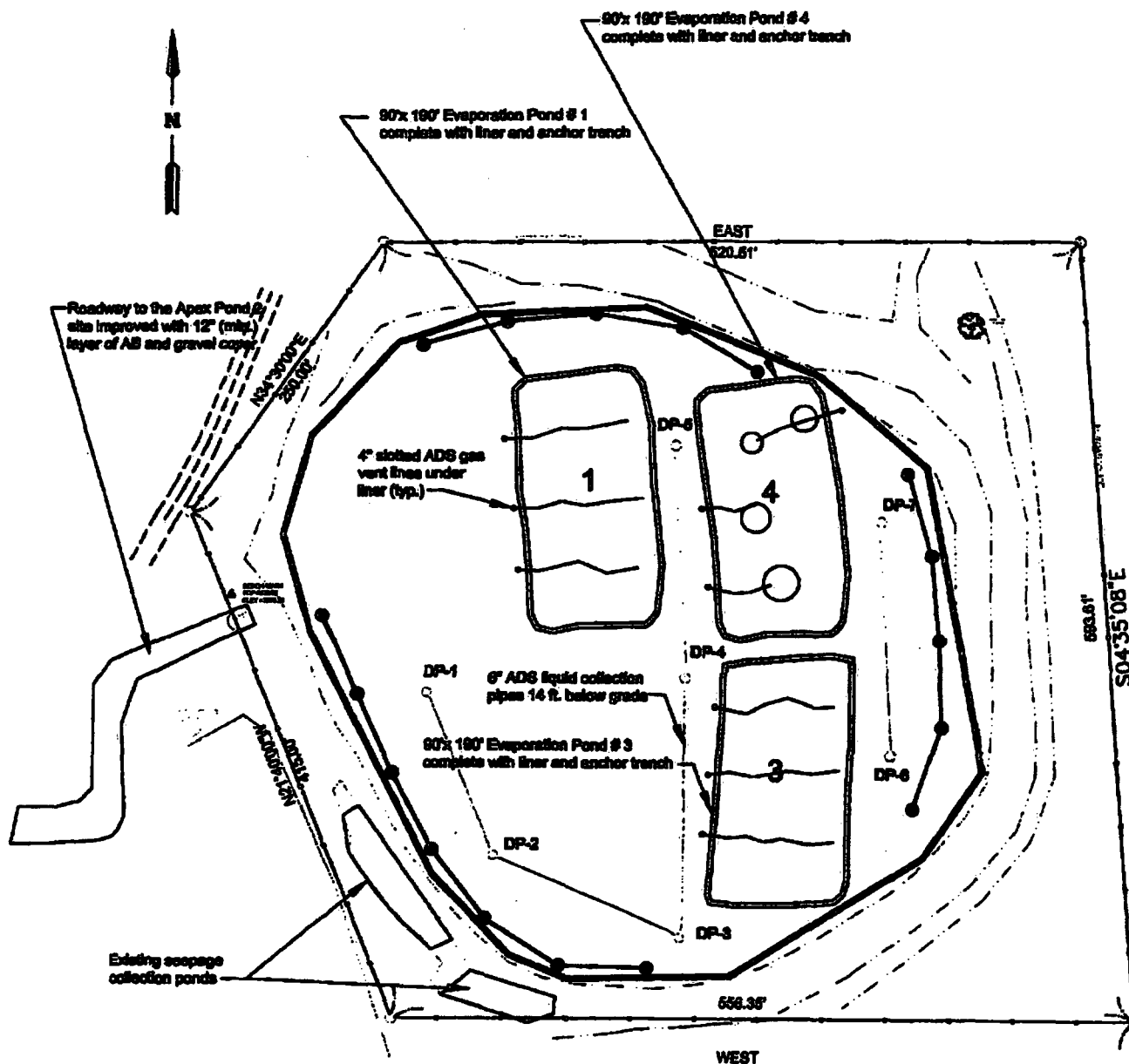
1. Sketch of work completed/in progress as of January 31, 2005, by J. David Jones (Gila Management, LLC)
2. Gas sampling and analysis report, January 26, 2005, 13 pages; by JBR Environmental Consultants, Inc.



Activity	2004 Budget	Revised Budget May 2004	Committed Cost this Period	Cumulative Committed Cost To Date 1-31-05	Forecasted Cost To Complete	Forecasted Final Cost	Remarks on Forecast to Complete
<b>Phase I - Drain Excess Liquid From Tailings</b>							
Test wick program - Nilex		35,000		35,000	0	35,000	
Earthwork during wick test program		2,000		1,768	0	1,768	
<u>Install drainage piping and sumps:</u>							
Contractor mobilization/demobilization		5,500		5,500	0	5,500	
Install sumps - material & labor		20,000		24,500	0	24,500	
Build surface evaporation ponds		2,700		838	0	838	
Remove existing evaporation ponds		2,000		0	0	0	Work moved to Phase III
Bury existing pond material & regrade		2,000		0	0	0	Work moved to Phase III
Survey monuments		3,500		1,180	500	1,680	One trip plus final report
<b>Subtotal Phase I</b>	<b>189,200</b>	<b>72,700</b>		<b>68,768</b>	<b>500</b>	<b>69,268</b>	
<b>Phase II - Evaporate Excess Liquid</b>							
Operate evaporation & pumping system		8,000		9,585		9,585	FY 2004 work only
Test pits to determine dewatering progress				1,320		1,320	
Upgrade evaporation cells & collection sumps			56,592	105,730	6,000	111,730	
Dewatering & seepage collection management				12,152	67,800	79,952	T&M labor + equipment; February '05 through June '05
<b>Subtotal Phase II</b>	<b>6,000</b>	<b>8,000</b>	<b>56,592</b>	<b>128,787</b>	<b>73,800</b>	<b>202,587</b>	
<b>Phase III - Regrading &amp; Final Cover System</b>							
Contractor mobilization/demobilization		20,000		4,426	37,600	42,026	
Excavate existing embankment		15,000		0	46,000	46,000	
Final grading of 1% surface		2,500		0	56,000	56,000	
Place barrier layer (GCL) - top		200,000		0	150,000	150,000	
Place barrier layer (GCL) - outcrops		50,000		0	0	0	Incl w/ GCL cover cost
Excavate diversion channel		9,100		0	37,000	37,000	
Place 12" protection layer on top surface		19,000		0	45,000	45,000	
Reconstruct outside embankment		7,350		0	0	0	Incl w/ excavation of existing embankment
Finish grade 1% surface - top		3,000		0	0	0	Incl w/ 12" protection layer
Place surface layer at outcrops (D50 = 1")		4,800		0	0	0	Incl w/ 12" protection layer
Recontour diversion channel for drainage		2,000		0	0	0	Incl w/ diversion channel exc
Place diversion channel erosion protection (3" rock)		3,800		0	0	0	Incl w/ diversion channel exc
Surveying - diversion channel drainage		2,500		0	0	0	Incl w/ diversion channel exc
Remove existing evaporation ponds		0		0	7,500	7,500	
Clear site for construction		3,000		0	3,000	3,000	
Performance & Payment Bond		0		0	4,500	4,500	
<b>Subtotal Phase III</b>	<b>337,000</b>	<b>342,050</b>	<b>0</b>	<b>4,426</b>	<b>386,600</b>	<b>391,026</b>	
<b>Field Indirect Costs</b>							
Construction Management labor		108,360	18,350	130,181	87,000	217,181	
Construction Management field expenses		38,575	3,945	28,077	22,200	50,277	
Field office trailer		6,525	165	2,003	1,655	3,658	
CQA testing		9,200		0	17,100	17,100	
CQA completion report		5,000		0	5,000	5,000	
Survey and layout		2,208		0	2,200	2,200	
Material classification tests		1,500	2,200	5,762	2,500	8,262	
Consulting Engineer		42,200		30,950	25,100	56,050	
<b>Subtotal Consultants</b>	<b>164,500</b>	<b>213,568</b>	<b>24,660</b>	<b>196,963</b>	<b>162,755</b>	<b>359,708</b>	
<b>Hecia Costs</b>							
Labor	15,500	15,500	1,125	8,925	13,500	22,425	
Travel expenses	3,200	3,200		969	4,600	5,569	
<b>Subtotal Hecia Costs</b>	<b>18,700</b>	<b>18,700</b>	<b>1,125</b>	<b>9,894</b>	<b>18,100</b>	<b>27,994</b>	
<b>Total Pond 2 Final Closure</b>	<b>715,400</b>	<b>655,018</b>	<b>82,378</b>	<b>408,825</b>	<b>641,755</b>	<b>1,050,580</b>	

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03-28

**PHASE IIA: PLAN VIEW OF SUMPS AND EVAPORATION PONDS**  
**SITE PROGRESS AS JANUARY 31, 2005**



NOT TO SCALE

phasellA04.dwg



[www.jbrenv.com](http://www.jbrenv.com) 8160 South Highland Drive • Sandy, Utah 84093 [P] 801.943.4144 [F] 801.942.1852

January 26, 2005

Mr. Chris Gypton  
Hecla Mining Corporation  
6500 Mineral Drive, Suite 200  
Coeur d' Alene, ID 83815-8788

RE: Air Sampling and Analysis Letter Report

Dear Chris:

JBR Environmental (JBR) is pleased to submit a letter report in regard to the whaleback (gases forming beneath the liner) sampling project, requested by Gila Management, LLC (Gila) and Hecla Mining Corporation (Hecla). This sampling event took place at Hecla's APEX Mine Pond II Reclamation facility located near St. George, Utah.

JBR's scope of work was divided into two tasks. The first task was the preliminary sampling event and site visit. Two grab samples were taken and analyzed for organic and sulfur-based inorganic compounds. The purpose of this sampling event was to qualitatively determine constituents of the gases. The second task was to review the sampling analyses data, compare the results to safety and environmental standards, and make any recommendations concerning handling of these gases. Both the first and second tasks are documented in this letter report.

#### Sampling Event

Greg Sharp, of JBR, arrived at the APEX Mine Pond II Reclamation facility on January 7, 2005. The climate during sampling was recorded as follows: temperature was below freezing, partly cloudy and breezy. It is JBR's determination that climate conditions did not adversely affect the sampling event.

Dave Jones, of Gila Management, secured both samples by making a small slit in the liner, opening the valve of the Teflon sample bag, inserting the bag into the slit, and extracting a sample by pulling the sides of the sample bag apart. The sample bag was closed after approximately ½ the bag was full of liner gases. Analyses request forms and Chain-of-Custody procedures were completed, the samples were boxed and shipped next-day air to Data Chem Laboratories. At the request of the client, quick turn-around laboratory analyses were requested.

#### Sample Results

The first sample (HECLA-01) was analyzed using EPA method TO-15 with a matrix of air and an aliquot volume of 200 ml. Data Chem notes in their Analytical Report for JBR Consultants, Form H, that "The sample could only be analyzed at a 1:10 dilution due to large amounts of carbon dioxide in the sample." TO-15 provides an encompassing analysis of analytes including solvents, chlorinated solvents, and petroleum hydrocarbons (see Attachment A). The report shows C12 (petroleum hydrocarbons) in the 1 part per million (ppm) range; C11 hydrocarbons and chloromethane at 1.0 ppm range; acetone, propene, isobutane, and butane around the 0.5 ppm range; and trace amounts (<0.3 ppm) of toluene, propene, chloroethane, hexane propanal, pentane, and propane.

The sulfur suite sample (HECLA-02) was analyzed using Data Chem's DCL Method, which includes analyses for mercaptans, carbon disulfide, diethyl sulfide, dimethyl disulfide, dimethyl sulfide, and hydrogen sulfide. All sulfur-based constituents were below detection limits except carbonyl sulfide. Carbonyl sulfide was detected at 0.055 ppm concentration.

### **Results Review**

All reviews are prefaced with the fact that sampling did not take place under isokentic sampling techniques, some gases may be heavier than other (thus, not a true representation of gas mixture) and the analysis was not performed to show true concentrations. However, this qualitative analysis does show what type of compounds may be present.

Based on the analyses notes, the majority of the gas is composed of carbon dioxide. This is likely caused by the incomplete neutralization of the acid leaching fluids that were present in the former tailings pond. Neutralization was performed by introducing unprocessed ore and limestone into the pond. Most likely, with recent rain events, additional mixing occurred between low pH liquids and carbonaceous rock, resulting in carbon dioxide gas generation. Because oxygen was not analyzed, it cannot be determined if exclusive breathing of the gases contained in the whalebacks would be immediately dangerous to life or health (IDLH). JBR strongly recommends that exclusive breathing of the gases does not occur.

The analyses show very low concentrations of petroleum hydrocarbons and solvents. Given the typical practices at mining facilities, small to moderate quantities of petroleum products and solvents were disposed of in the impoundment. Very little generation of sulfide compounds were identified; the carbonyl sulfide may be a by-product of acidic liquids reacting with the earthen material. Carbonyls can react vigorously with oxidizing materials, produce toxic gases if exposed to flame, and pose a moderate explosion hazard. However, given the levels detected, these scenarios are unlikely.

Summing the petroleum gases and allowing for a 300 percent deviation, it still is unlikely the gases will pose an explosion, fire hazard, or immediately danger to life or health (IDLH). JBR cautions that ignition precautions should be in place when handling these gases, but spontaneous combustion is unlikely. However, this gas is also composed of low levels of other hydrocarbons and carbonyl sulfide. The presence of these other constituents increases the possibility that an ignition source near the gases could be injurious. Breathing the petroleum gases on a 8-hour basis is not recommended and likely not feasible, but the levels are such that, if this were to occur, the individual would be exposed to levels higher than OSHA's permissible exposure limits (PELs).

Very low levels of hazardous air pollutants (i.e. hexane) and other solvents are detected in the gases. No levels measured were near IDLH. The 8-hour exposure limit (and increasing 300%) for all the solvents detected did not exceed the PEL. Sampling results for the most concentrated constituents are shown in Table 1.

**Table 1 Sampling Results**

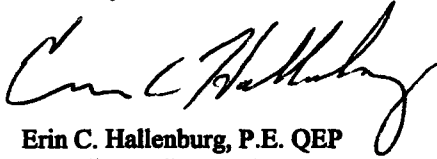
Analyte	Result (ppm)	PEL or TWA* (PPM)
C12 Hydrocarbon (total)	4.83	
C11 Hydrocarbon (total)	1.39	
Chloromethane	0.9	100, (300 max, 5-minutes)
Propene	0.5	100
Isobutane	0.4	800
Carbonyl sulfide	0.055	Not established, considered toxic

**Recommendations**

JBR recommends that standard safety precautions be taken when handling the gases. Safety precautions should include, but not be limited to: neoprene gloves, standing upwind from exhausting gases (i.e. dilution with fresh air), organic respirators when working near vented gases, removal of ignition sources near and around the source, and no exclusive breathing of the gases. If these gases are being collected in a closed container, an explosive meter should be used prior to handling gases. However, the most likely hazard is the presences of carbon dioxide, thus indicating the lack of oxygen.

Please note that JBR can provide services that can further quantify these gases. We appreciate this opportunity to provide environmental and safety services to Hecla Mining. If you have any questions or would like to proceed in a quantitative assessment of the gases, please contact me at (801) 943-4144.

Sincerely,

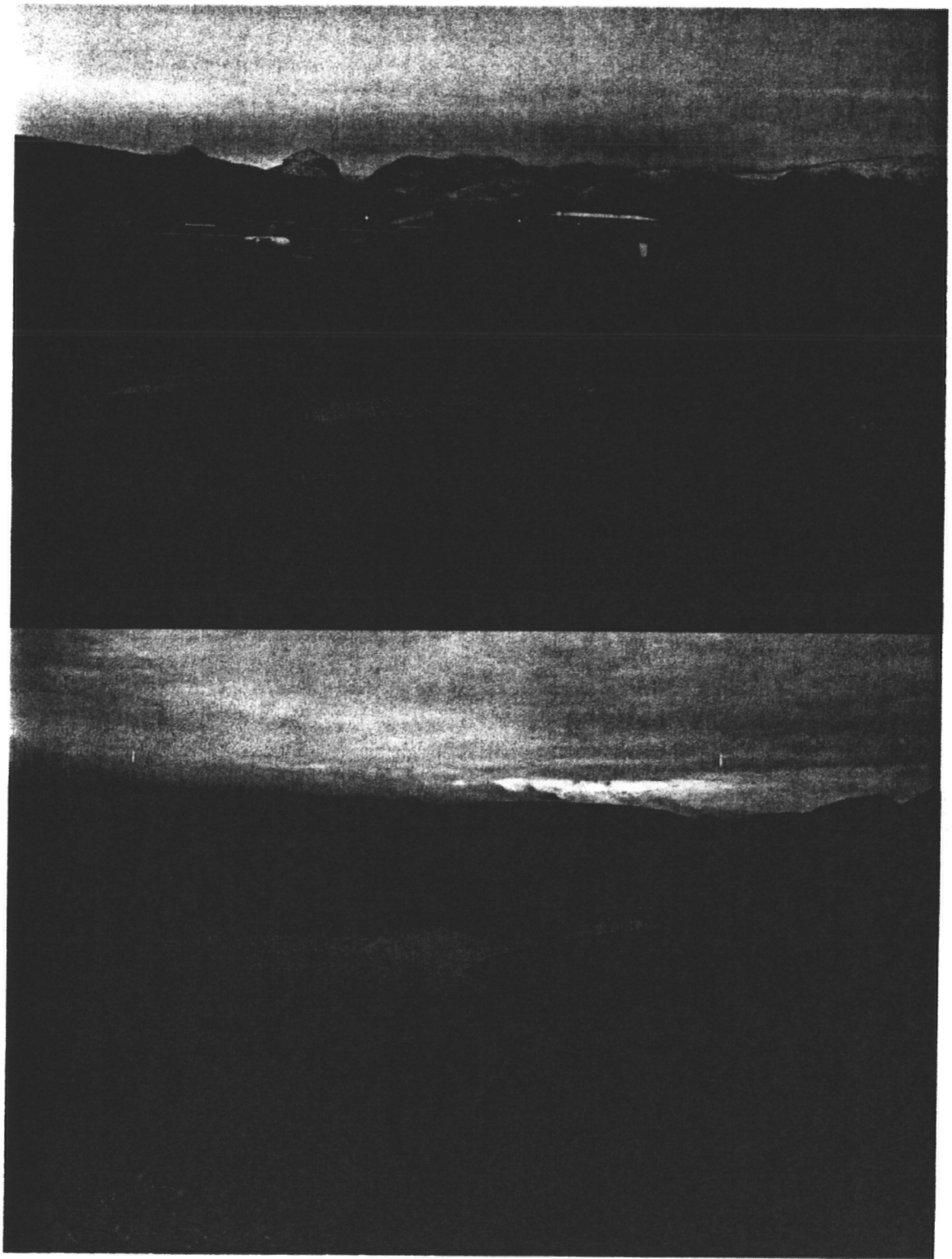


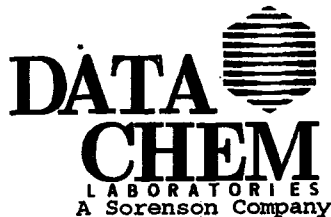
Erin C. Hallenburg, P.E. QEP  
Compliance Group Manager

Attachment

c: Dave Jones/Gila Management  
Greg Sharp/JBR

\* TWA = Time Weighted Average





## COVER PAGE

ANALYTICAL REPORT FOR  
JBR ConsultantsPhone (801) 943-4144 Fax (801) 942-1852  
E-mail: ehallenburg@jbreenv.comJAN 11 2005 03-28  
Form COVER-V1.4  
01110510512490  
Page 1

G050901Q

REC'D JAN 12 2005

DCL Report Group...: 05I-0048-01


REC'D JAN 11 2005

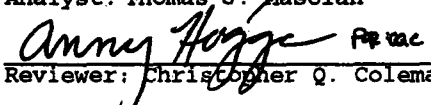
Date Printed.....: 11-JAN-05 10:51

JBR Consultants  
Attention: Erin Hallenburg  
8160 So. Highland Drive  
Suite A4  
Sandy, UT 84093Project Protocol #: P021C002  
Client Ref Number.: Apex Pend 2  
Release Number.....: Apex Pend 2

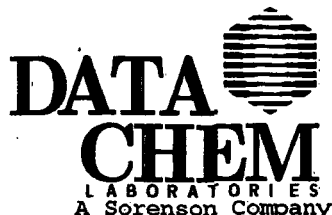
Analysis Method(s): TO-15

<u>Client Sample Name</u>	<u>Laboratory Sample Name</u>	<u>Date Sampled</u>	<u>Date Received</u>
Method Blank	BL-227233-1	NA	NA
LCS	QC-227233-1	NA	NA
LCS Dup	QD-227233-1	NA	NA
HECLA01	05I00390	07-JAN-05	10-JAN-05

  
Analyst: Thomas J. Masolian 1.11.05  
Date

  
Reviewer: Christopher Q. Coleman 1/11/05  
Date

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547  
Phone (801) 266-7700 Web Page: www.datachem.com  
FAX (801) 268-9992 E-mail: lab@datachem.com



FORM H (TYPE I)  
SINGLE METHOD ANALYSES

Form RLIMS63H-V1.4  
01110510512490  
Page 2

SAMPLE GROUP COMMENTS



DCL Report Group...: 05I-0048-01  
Date Printed.....: 11-JAN-05 10:51

Client Name....: JBR Consultants

Release Number....: Apex Pend 2

Sample Group Comments

Analyzed by GC/MS according to method T015.

PQL - Practical Quantitation Limit - Lowest standard that is detectable.  
MDL - Method Detection Limit - Statistically derived value using 40 CFR methods.

The sample could only be analyzed at a 1:10 dilution due to large amounts of carbon dioxide in the sample.

General Information

The DCL QC Database maintains all numerical figures which are input from the pertinent data source. These data have not been rounded to significant figures nor have they been moisture corrected. Reports generated from the system, however, list data which have been rounded to the number of significant figures requested by the client or deemed appropriate for the method. This may create minor discrepancies between data which appear on the QC Summary Forms (Forms B-G) and those that would be calculated from rounded analytical results. Additionally, if a moisture correction is performed, differences will be observed between the QC data and the surrogate data reported on Form A (or other report forms) and corresponding data reported on QC Summary Forms. In these cases, the Form A will indicate the "Report Basis" as well as the moisture value used for making the correction.  
Report generation options: BX

Result Symbol Definitions

ND - Not Detected above the MDL (LLD or MDC for radiochemistry).  
\*\* - No result could be reported, see sample comments for details.

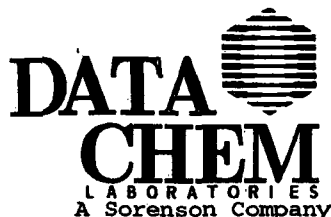
Qualifier Symbol Definitions

U - Not Detected above the MDL (LLD or MDC for radiochemistry).  
B - For organic analyses the qualifier indicates that this analyte was found in the method blank. For inorganic analyses the qualifier signifies the value is between the MDL and PQL.  
J - For organic analyses the qualifier indicates that the value is between the MDL and the PQL. It is also used for indicating an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.

QC Flag Symbol Definitions

\* - Parameter outside of specified QC limits.





FORM A (TYPE I)  
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.4  
01110511153858

Page 3

SAMPLE ANALYSIS DATA SHEET



S05090KY

Date Printed.....: 11-JAN-05 11:15

Client Name.....: JBR Consultants  
Client Ref Number.....: Apex Pend 2  
Sampling Site.....: Apex Pend 2  
Release Number.....: Apex Pend 2

Date Received.....: 10-JAN-05 00:00

Client Sample Name: HECLA01

DCL Sample Name....: 05I00390

DCL Report Group...: 05I-0048-01

Matrix.....: AIR

Date Sampled.....: 07-JAN-05 00:00

Reporting Units....: PPB V/V

Report Basis.....: ☒ As Received ☐ Dried

DCL Preparation Group: Not Applicable  
Date Prepared.....: Not Applicable  
Preparation Method...: Not Applicable  
Aliquot Weight/Volume: 200 mL  
Net Weight/Volume....: Not Required

DCL Analysis Group: G050B002

Analysis Method....: TO-15

Instrument Type....: GC/MS VO

Instrument ID.....: 5972-0

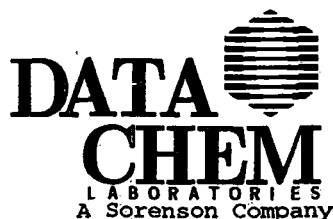
Column Type.....: DB-1

☒ Primary

☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Comment	Qual.	Dilution	PQL
Dichlorodifluoromethane	11-JAN-05 08:32	0.562	ND			20	1.0
Chloromethane	11-JAN-05 08:32	0.370	880			20	1.0
Freon 114	11-JAN-05 08:32	0.599	ND			20	1.0
Vinyl Chloride	11-JAN-05 08:32	0.375	ND			20	1.0
Bromomethane	11-JAN-05 08:32	0.316	70.			20	1.0
Chloroethane	11-JAN-05 08:32	0.400	180			20	1.0
Freon 11	11-JAN-05 08:32	0.340	ND			20	1.0
cis-1,2-Dichloroethene	11-JAN-05 08:32	0.359	ND			20	1.0
Carbon Disulfide	11-JAN-05 08:32	0.330	34.			20	1.0
Freon 113	11-JAN-05 08:32	0.300	ND			20	1.0
Acetone	11-JAN-05 08:32	0.282	500			20	1.0
Methylene Chloride	11-JAN-05 08:32	0.380	19.			20	1.0
trans-1,2-Dichloroethene	11-JAN-05 08:32	0.305	ND			20	1.0
1,1-Dichloroethane	11-JAN-05 08:32	0.336	ND			20	1.0
Vinyl Acetate	11-JAN-05 08:32	0.411	ND			20	1.0
1,1-Dichloroethene	11-JAN-05 08:32	0.362	ND			20	1.0
2-Butanone	11-JAN-05 08:32	0.439	12.			20	1.0
Chloroform	11-JAN-05 08:32	0.401	16.			20	1.0
1,1,1-Trichloroethane	11-JAN-05 08:32	0.337	ND			20	1.0
Carbon Tetrachloride	11-JAN-05 08:32	0.312	ND			20	1.0
Benzene	11-JAN-05 08:32	0.336	58.			20	1.0
1,2-Dichloroethane	11-JAN-05 08:32	0.362	ND			20	1.0
Trichloroethene	11-JAN-05 08:32	0.290	ND			20	1.0
1,2-Dichloropropane	11-JAN-05 08:32	0.362	ND			20	1.0
Bromodichloromethane	11-JAN-05 08:32	0.318	ND			20	1.0
cis-1,3-Dichloropropene	11-JAN-05 08:32	0.315	ND			20	1.0
4-Methyl-2-Pentanone	11-JAN-05 08:32	0.344	ND			20	1.0
Toluene	11-JAN-05 08:32	0.279	140			20	1.0
trans-1,3-Dichloropropene	11-JAN-05 08:32	0.324	ND			20	1.0
1,1,2-Trichloroethane	11-JAN-05 08:32	0.296	ND			20	1.0
Tetrachloroethene	11-JAN-05 08:32	0.292	ND			20	1.0
2-Hexanone	11-JAN-05 08:32	0.347	ND			20	1.0
Dibromochloromethane	11-JAN-05 08:32	0.330	ND			20	1.0
1,2-Dibromoethane	11-JAN-05 08:32	0.313	ND			20	1.0
Chlorobenzene	11-JAN-05 08:32	0.293	ND			20	1.0
Ethylbenzene	11-JAN-05 08:32	0.311	5.0			20	1.0
m,p-Xylene	11-JAN-05 08:32	0.708	17.			20	1.0
o-Xylene	11-JAN-05 08:32	0.361	9.2			20	1.0
Styrene	11-JAN-05 08:32	0.296	ND			20	1.0
Bromoform	11-JAN-05 08:32	0.343	ND			20	1.0
1,1,2,2-Tetrachloroethane	11-JAN-05 08:32	0.329	ND			20	1.0



FORM A (TYPE I)  
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.4  
01110511153858  
Page 4

SAMPLE ANALYSIS DATA SHEET



S05090KY

Date Printed..... 11-JAN-05 11:15  
Client Name..... JBR Consultants

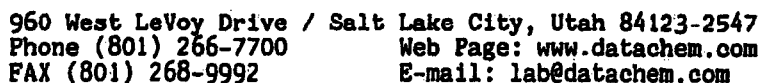
DCL Sample Name.... 05I00390  
DCL Report Group... 05I-0048-01

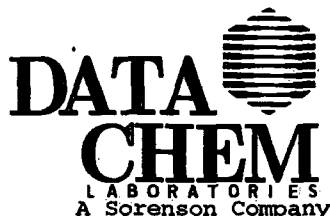
Analytical Results

Analyte	Date Analyzed	MDL	Result	Comment	Qual.	Dilution	PQL
Benzyl Chloride	11-JAN-05 08:32	0.329	ND			20	1.0
4-Ethyl toluene	11-JAN-05 08:32	0.365	ND			20	1.0
1,3,5-Trimethylbenzene	11-JAN-05 08:32	0.343	ND			20	1.0
1,2,4-Trimethylbenzene	11-JAN-05 08:32	0.343	ND			20	1.0
1,3-Dichlorobenzene	11-JAN-05 08:32	0.328	ND			20	1.0
1,4-Dichlorobenzene	11-JAN-05 08:32	0.325	ND			20	1.0
1,2-Dichlorobenzene	11-JAN-05 08:32	0.331	ND			20	1.0
1,2,4-Trichlorobenzene	11-JAN-05 08:32	0.352	ND			20	1.0
Hexachlorobutadiene	11-JAN-05 08:32	0.338	ND			20	1.0
Methyl t-Butyl Ether	11-JAN-05 08:32	0.316	ND			20	1.0

Tentatively Identified Compound Results

Analyte(Retention Time)	Date Analyzed	Result	Comment	Qual.	Dilution
Propene(4.50)	11-JAN-05 08:32	540		J	20
Isobutane(4.87)	11-JAN-05 08:32	400		J	20
1-Propene, 2-methyl-(5.05)	11-JAN-05 08:32	360		J	20
Butane(5.13)	11-JAN-05 08:32	380		J	20
Propane, 2-chloro-(6.37)	11-JAN-05 08:32	240		J	20
Pentane(6.47)	11-JAN-05 08:32	200		J	20
Pentane, 2-methyl-(7.86)	11-JAN-05 08:32	260		J	20
Propanal, 2-methyl-(8.09)	11-JAN-05 08:32	100		J	20
Furan, 2-methyl-(8.44)	11-JAN-05 08:32	220		J	20
Hexane(8.58)	11-JAN-05 08:32	140		J	20
Heptane(11.01)	11-JAN-05 08:32	24.		J	20
C11 Hydrocarbon(16.12)	11-JAN-05 08:32	110		J	20
Phenol(16.44)	11-JAN-05 08:32	180		J	20
C11 Hydrocarbon(16.70)	11-JAN-05 08:32	640		J	20
C11 Hydrocarbon(16.96)	11-JAN-05 08:32	320		J	20
C11 Hydrocarbon(17.31)	11-JAN-05 08:32	320		J	20
C12 Hydrocarbon(17.71)	11-JAN-05 08:32	160		J	20
C12 Hydrocarbon(17.80)	11-JAN-05 08:32	1100		J	20
C12 Hydrocarbon(17.98)	11-JAN-05 08:32	380		J	20
C12 Hydrocarbon(18.12)	11-JAN-05 08:32	780		J	20
C12 Hydrocarbon(18.36)	11-JAN-05 08:32	220		J	20
C12 Hydrocarbon(18.46)	11-JAN-05 08:32	1200		J	20
C12 Hydrocarbon(18.77)	11-JAN-05 08:32	500		J	20
C12 Hydrocarbon(18.92)	11-JAN-05 08:32	160		J	20
C12 Hydrocarbon(19.00)	11-JAN-05 08:32	170		J	20
C12 Hydrocarbon(19.09)	11-JAN-05 08:32	160		J	20





FORM J (TYPE I)  
SINGLE METHOD ANALYSES

QUALITY CONTROL DATA SHEET  
LABORATORY CONTROL SAMPLE (LCS)  
LABORATORY CONTROL DUPL (LCD)

Form RLIMS63J-V1.4  
01110510512490  
Page 5



S05090L2

Client Name.....: JBR Consultants  
Release Number.....: Apex Pend 2

Matrix.....: AIR  
Reporting Units.....: ppb v/v

DCL Preparation Group: Not Applicable  
Date Prepared.....: Not Applicable  
Preparation Method...: Not Applicable

DCL Sample Name....: QC-227233-1  
Date Printed.....: 11-JAN-05 10:51

DCL Analysis Group: G050B002  
Analysis Method....: T015  
Instrument Type....: GC/MS VO  
Instrument ID.....: 5972-0  
Column Type.....: DB-1  
☒ Primary  
☐ Confirmation

QC Limit Type.....: Method

Analytical Results

Analyte	Date Analyzed	Target	Result	Percent Recovery	QC Limits	QC Flag
Methylene Chloride	10-JAN-05 16:20	10.0	9.66	96.6	65.0/135.	
1,1-Dichloroethene	10-JAN-05 16:20	10.0	9.34	93.4	65.0/135.	
Trichloroethene	10-JAN-05 16:20	10.0	11.1	111.	65.0/135.	
Toluene	10-JAN-05 16:20	10.0	10.7	107.	65.0/135.	
1,1,2,2-Tetrachloroethane	10-JAN-05 16:20	10.0	11.9	119.	65.0/135.	

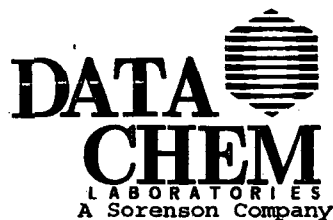


S05090L3

DCL Sample Name....: QC-227233-1

Analytical Results

Analyte	Date Analyzed	Duplicate Result	Percent Recovery	Mean	Range	RPD	QC Limits	QC Flag
Methylene Chloride	10-JAN-05 17:01	10.6	106.	10.1	0.920	9.1	0.00/25.0	
1,1-Dichloroethene	10-JAN-05 17:01	10.1	101.	9.70	0.724	7.5	0.00/25.0	
Trichloroethene	10-JAN-05 17:01	11.7	117.	11.4	0.595	5.2	0.00/25.0	
Toluene	10-JAN-05 17:01	9.49	94.9	10.1	1.20	12.	0.00/25.0	
1,1,2,2-Tetrachloroethane	10-JAN-05 17:01	10.9	109.	11.4	0.960	8.4	0.00/25.0	



FORM C (TYPE I)  
SINGLE METHOD ANALYSES

Form RLIMS63C-V1.4  
01110510512490

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QUALITY CONTROL DATA SHEET  
BLANK SAMPLE



Client Name..... JBR Consultants  
Release Number..... Apex Pend 2

Matrix..... AIR  
Reporting Units..... PPB V/V

DCL Preparation Group: Not Applicable  
Date Prepared..... Not Applicable  
Preparation Method... Not Applicable

DCL Sample Name.... BL-227233-1  
Date Printed..... 11-JAN-05 10:51

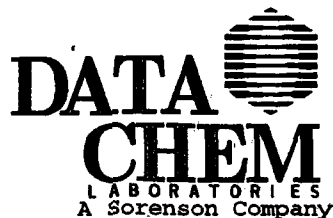
DCL Analysis Group: G050B002  
Analysis Method.... TO-15  
Instrument Type.... GC/MS VO  
Instrument ID..... 5972-0  
Column Type..... DB-1

☒ Primary  
☐ Confirmation

QC Limit Type..... Method

Analytical Results

Analyte	Date Analyzed	Result	MDL	CRDL
Dichlorodifluoromethane	10-JAN-05 17:42	ND	0.562	1.0
Chloromethane	10-JAN-05 17:42	ND	0.370	1.0
Freon 114	10-JAN-05 17:42	ND	0.599	1.0
Vinyl Chloride	10-JAN-05 17:42	ND	0.375	1.0
Bromomethane	10-JAN-05 17:42	ND	0.316	1.0
Chloroethane	10-JAN-05 17:42	ND	0.400	1.0
Freon 11	10-JAN-05 17:42	ND	0.340	1.0
cis-1,2-Dichloroethene	10-JAN-05 17:42	ND	0.359	1.0
Carbon Disulfide	10-JAN-05 17:42	ND	0.330	1.0
Freon 113	10-JAN-05 17:42	ND	0.300	1.0
Acetone	10-JAN-05 17:42	ND	0.282	1.0
Methylene Chloride	10-JAN-05 17:42	ND	0.380	1.0
trans-1,2-Dichloroethene	10-JAN-05 17:42	ND	0.305	1.0
1,1-Dichloroethane	10-JAN-05 17:42	ND	0.336	1.0
Vinyl Acetate	10-JAN-05 17:42	ND	0.411	1.0
1,1-Dichloroethene	10-JAN-05 17:42	ND	0.362	1.0
2-Butanone	10-JAN-05 17:42	ND	0.439	1.0
Chloroform	10-JAN-05 17:42	ND	0.401	1.0
1,1,1-Trichloroethane	10-JAN-05 17:42	ND	0.337	1.0
Carbon Tetrachloride	10-JAN-05 17:42	ND	0.312	1.0
Benzene	10-JAN-05 17:42	ND	0.336	1.0
1,2-Dichloroethane	10-JAN-05 17:42	ND	0.362	1.0
Trichloroethene	10-JAN-05 17:42	ND	0.290	1.0
1,2-Dichloropropane	10-JAN-05 17:42	ND	0.362	1.0
Bromodichloromethane	10-JAN-05 17:42	ND	0.318	1.0
cis-1,3-Dichloropropene	10-JAN-05 17:42	ND	0.315	1.0
4-Methyl-2-Pentanone	10-JAN-05 17:42	ND	0.344	1.0
Toluene	10-JAN-05 17:42	ND	0.279	1.0
trans-1,3-Dichloropropene	10-JAN-05 17:42	ND	0.324	1.0
1,1,2-Trichloroethane	10-JAN-05 17:42	ND	0.296	1.0
Tetrachloroethene	10-JAN-05 17:42	ND	0.292	1.0
2-Hexanone	10-JAN-05 17:42	ND	0.347	1.0
Dibromochloromethane	10-JAN-05 17:42	ND	0.330	1.0
1,2-Dibromoethane	10-JAN-05 17:42	ND	0.313	1.0
Chlorobenzene	10-JAN-05 17:42	ND	0.293	1.0
Ethylbenzene	10-JAN-05 17:42	ND	0.311	1.0
m,p-Xylene	10-JAN-05 17:42	ND	0.708	1.0
o-Xylene	10-JAN-05 17:42	ND	0.361	1.0
Styrene	10-JAN-05 17:42	ND	0.296	1.0
Bromoform	10-JAN-05 17:42	ND	0.343	1.0
1,1,2,2-Tetrachloroethane	10-JAN-05 17:42	ND	0.329	1.0
Benzyl Chloride	10-JAN-05 17:42	ND	0.329	1.0
4-Ethyl toluene	10-JAN-05 17:42	ND	0.365	1.0
1,3,5-Trimethylbenzene	10-JAN-05 17:42	ND	0.343	1.0
1,2,4-Trimethylbenzene	10-JAN-05 17:42	ND	0.343	1.0
1,3-Dichlorobenzene	10-JAN-05 17:42	ND	0.328	1.0
1,4-Dichlorobenzene	10-JAN-05 17:42	ND	0.325	1.0



FORM C (TYPE I)  
SINGLE METHOD ANALYSES

QUALITY CONTROL DATA SHEET  
BLANK SAMPLE

Form RLIMS63C-V1.4  
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Page 7

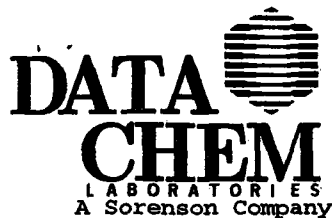


Client Name.....: JBR Consultants

DCL Sample Name....: BL-227233-1  
Date Printed.....: 11-JAN-05 10:51

**Analytical Results**

Analyte	Date Analyzed	Result	MDL	CRDL
1,2-Dichlorobenzene	10-JAN-05 17:42	ND	0.331	1.0
1,2,4-Trichlorobenzene	10-JAN-05 17:42	ND	0.352	1.0
Hexachlorobutadiene	10-JAN-05 17:42	ND	0.338	1.0
Methyl t-Butyl Ether	10-JAN-05 17:42	ND	0.316	1.0



FORM G (TYPE I)  
SINGLE METHOD ANALYSES

QUALITY CONTROL DATA SHEET  
SURROGATE SUMMARY

U89848  
03-28  
Form RLIMS63G-V1.4  
01110510512490  
Page 8



G050B002

Client Name..... JBR Consultants

Release Number..... Apex Pend 2

Matrix..... AIR

Reporting Units..... ppb v/v

Date Printed..... 11-JAN-05 10:51

DCL Analysis Group: G050B002

Analysis Method.... T015

DCL Prep Group..... Not Applicable

Preparation Method: Not Applicable

QC Limit Type..... Method

Surrogate Recoveries

Surr. ID	4-Bromofluorobenzene								
QC Limits	65.0/135.								
DCL Sample Number	Analyte Result	Spiked Amount	% Rec. Q	Analyte Result	Spiked Amount	% Rec. Q	Analyte Result	Spiked Amount	% Rec. Q
05I00390	19.9	20.0	99.5						
BL-227233-1	17.5	20.0	87.5						
QC-227233-1	20.3	20.0	102.						
QD-227233-1	18.9	20.0	94.4						